

EPA's 10-Year Vision Statement for the Bay Delta Estuary

This Action Plan will serve as EPA's blueprint during the next ten years (2012-2022) for restoring water quality and fisheries within the Bay Delta Estuary in a manner that contributes to the health and sustainability of California's cities, towns, and agricultural landscapes. The Action Plan describes a range of regulatory and non-regulatory actions EPA intends to take to advance the fulfillment of the agency's following vision for the Bay Delta Estuary:

By 2017, stakeholders¹ will reach a multi-faceted agreement that:

- (1) defines the Delta outflow regime necessary to support a healthy Bay Delta Estuary;
- (2) advances the implementation of water quality criteria to fully protect beneficial uses;
- (3) finalizes the framework for a conservation plan designed to recover imperiled fishes and aquatic habitats;
- (4) authorizes new infrastructure for upgrading freshwater diversion and conveyance systems tied to the CVP and SWP², and for upgrading municipal wastewater treatment systems;
- (5) establishes the framework for a regional monitoring strategy for surface water in the Delta linked to existing and emerging monitoring programs for the Delta, the Bay, and the San Joaquin River³;
- (6) charts the course for institutional arrangements to ensure the implementation of, and accountability for, the multi-faceted agreement.

By 2022, stakeholders will be five years into implementing components of the multi-faceted agreement. The State Water Board and the Regional Water Boards will be administering a year-round "estuarine standard" that optimizes the volume and areal extent of low-salinity aquatic habitat available to native fishes and their prey. Agencies and NGOs will be working successfully with public and private landowners within the Delta's Secondary Zone to re-establish connections between streams and floodplains, and to expand the acreage of riparian forest and tidal wetlands within a matrix of sustainable farms⁴.

Restoration of the Bay Delta Estuary will be supported by dramatic increases in water-use efficiency and recycling in urban and agriculture sectors across California. Also, the restoration of floodplains, riparian systems, and wetlands will be linked with compliance plans for achieving water quality standards and targeted reductions in pollutant loads into selected stream segments

¹ Federal, State, and local agencies; utilities and water districts; and non-governmental organizations

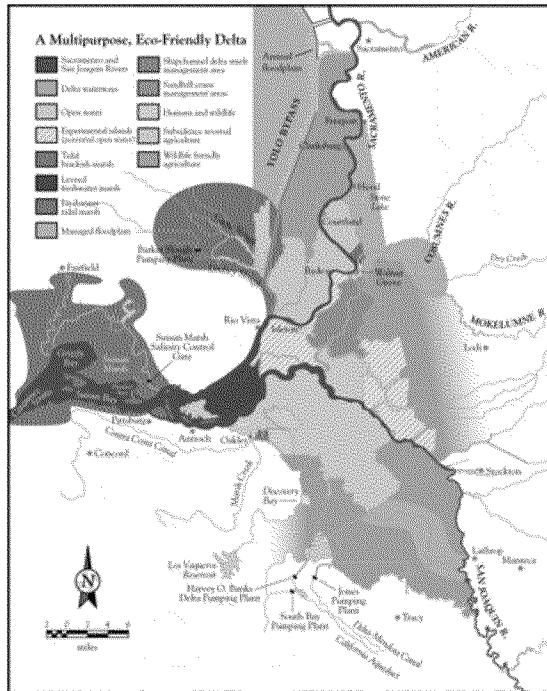
² The federal Central Valley Project (CVP)

[http://www.usbr.gov/projects/Project.jsp?proj_Name=Central+Valley+Project]; and the State Water Project [<http://www.water.ca.gov/swp/>]

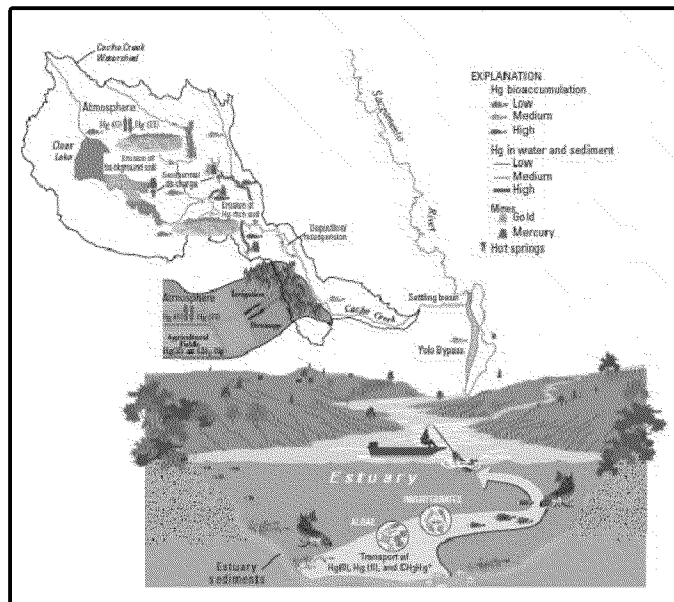
³ The Interagency Ecological Program (IEP) has long provided essential information on the status and trends of aquatic flora and fauna in the Delta [<http://www.water.ca.gov/iep/>]. Elsewhere, the San Francisco Estuary Institute (SFEI) provides important monitoring information on many aquatic ecosystems including the Suisun, San Pablo, and San Francisco bays [<http://www.sfei.org/>]. Long-term research is also underway on designated sites within the San Francisco Bay National Estuarine Research Reserve (NERR) [<http://sfbaynerr.org/>]. Finally, a credible monitoring program is expected to accompany the work being done under the aegis of the San Joaquin River Restoration Program (SJRRP) [<http://www.restoresjr.net/>].

⁴⁴ From a landscape perspective, this vision statement from EPA is consistent with the portrayal of a "Multipurpose, Eco-Friendly Delta" advanced by UCD's Center for Watershed Sciences [<http://deltasolutions.ucdavis.edu/program/>].

and bays within the Bay Area and the Central Valley.



PPIC *Managing California's Water – From Conflict to Reconciliation* (2011)



USGS Cache Creek Mercury Studies Program

Floodplains, Riparian Corridors, and Wetlands

1. EPA will collaborate with federal and State agencies (especially the Sacramento Corps District and DWR) to conserve and restore active and historical floodplains,

riparian forests (and migratory corridors for young salmon), and wetlands within the Delta. EPA will pursue the following actions in concert with the following initiatives: the Bay Delta Conservation Plan (BDCP), the Central Valley Flood Management Program (CVFMP) the Delta Plan (Delta Stewardship Council), and the Delta Conservancy⁵.

- (a) EPA will encourage the Sacramento Corps District to: (i) confer federal regulatory jurisdiction over Delta islands that have subsided below sea level, (ii) designate wetlands mitigation sites at strategic locations within the Delta, (iii) set mitigation ratios for Delta related impacts at levels consistent with the protocols contained in the Final Compensatory Mitigation Rule (2008)⁶, and (iv) require long-term monitoring for methylmercury at the mitigation sites as a component of the emerging Delta Regional Monitoring Plan;
 - (b) EPA will support DWR's efforts to restore a network of wetlands mitigation and enhancement projects such as Grizzly Slough (south of the Cosumnes River), Liberty Island and Prospect Island (in the southern Yolo Bypass), and the lower San Joaquin River (in the vicinity of the Stewart Tract in the South Delta).⁷
- 2. EPA will continue to encourage the Corps (Sacramento and San Francisco Districts) to beneficially re-use clean dredged material within the Delta to restore wetlands, strengthen levees, and potentially offset the subsidence of Delta islands (where landowners are willing)⁸.**
- 3. EPA will collaborate with USGS, other agencies, and NGOs to restart work on the Carbon Farm at Twitchell Island as a means to rebuild peat soils on sunken islands within the primary zone of the Delta, and to sequester greenhouse gases⁹.**
- 4. Within the Cache Creek watershed, EPA will continue collaborating with interagency representatives in a joint effort to: (a) characterize the sources and releases of mercury within the system; (b) identify parties responsible for the abandoned/orphaned mines in the upper watershed; and (c) consider potential**

⁵Bay Delta Conservation Plan: <http://baydeltaconservationplan.com/Home.aspx>

Central Valley Flood Management Program: <http://www.water.ca.gov/cvfmp/documents.cfm>

The Delta Stewardship Council: <http://deltacouncil.ca.gov/delta-plan>

The Delta Conservancy: <http://deltaconservancy.ca.gov/>

⁶Wetlands Compensatory Mitigation: <http://www.epa.gov/owow/keep/wetlands/wetlandsmitigation/index.html> The Sacramento Corps District has already discouraged the construction of small residential, commercial, and institutional developments within the Delta by suspending nationwide permits #29 and #39.

<http://www.spn.usace.army.mil/regulatory/nwp/NWP29.pdf> ; <http://www.spn.usace.army.mil/regulatory/nwp/NWP39.pdf>

⁷ DWR's wetlands mitigation and enhancement projects:

<http://www.water.ca.gov/floodmgmt/dsmo/ecb/maep/>

http://www.water.ca.gov/news/newsreleases/2010/122210delta_habitat_projects.pdf

⁸ Delta Dredged Sediment Long-Term Management Strategy (LTMS): <http://www.deltaltms.com/>

⁹ USGS' Carbon Farm at Twitchell Island http://ca.water.usgs.gov/news/ReleaseJuly23_2008.html

cleanup actions for abandoned mercury mines, for mercury hotspots within Cache Creek proper and at the eastern terminus at the creek (Cache Creek Settling Basin and the Yolo Bypass)¹⁰.

Scientists and policy makers have identified Cache Slough and the Yolo Bypass as potential regions for restoring floodplains, riparian forest, and wetlands (Cache Slough is a separate water body from the Cache Creek Settling Basin that is located ~30 miles north at the terminus of Cache Creek)¹¹. As designed, the Bypass receives seasonal floodwaters from the Sacramento River, supports 42 species of fish (15 native) and 200 species of birds, and appears to enrich the food web of the greater Bay Delta Estuary by producing phytoplankton and zooplankton¹².

High concentrations of mercury have been detected in the Cache Creek Settling Basin and the northern part of the Yolo Bypass, and in the gravel, sand, and silt of the watershed. Today, mercury continues to discharge from a multitude of abandoned/mercury mines that operated in the Coast Range during the 19th and 20th centuries. Portions of three historic mercury mining districts are located within the 1,100 square mile watershed, and the watershed “exports” 60% of all the mercury discharged within the Central Valley (while covering only 2% of the landmass)¹³.

Half the mercury in the Cache Creek watershed is trapped in the Cache Creek Settling

¹⁰ Potential remedial action would be designed to adhere to the Comprehensive Response, Compensation, and Liability Act (CERCLA or Superfund) and the Cache Creek Watershed Mercury TMDL issued by the Regional Water Board (Central Valley) and approved by EPA.

http://www.swrcb.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/cache_sulphur_creek/index.shtml

¹¹ *Envisioning Futures for the Sacramento-San Joaquin Delta* (FEB 2007); pages 70, 75-76, 78-79

http://www.ppic.org/content/pubs/report/R_207JLChapter4R.pdf

¹² *California's Yolo Bypass: Evidence that flood control can be compatible with fisheries, wetlands, wildlife, and agriculture*. Fisheries (AUG 2001).

<http://wfcb.ucdavis.edu/www/Faculty/Peter/petermoyle/publications/YoloFisheries.pdf>

Liberty Island Provides Insights into Delta Ecosystem Restoration. Delta Stewardship Council; April 2010.

http://science.calwater.ca.gov/publications/sci_news_0410_liberty.html

Yolo Basin Foundation: <http://www.yolobasin.org/wildlife.cfm>

Sacramento Corps District; re-vegetation projects in the Yolo Bypass and Cache Slough;

<http://www.spk.usace.army.mil/projects/civil/distreveg/>

¹³ *Mercury, Methylmercury, and Other Constituents in Sediment and Water from Seasonal and Permanent Wetlands in the Cache Creek Settling Basin and Yolo Bypass, 2005–06*. USGS Open-File Report 2009-1182

<http://pubs.usgs.gov/of/2009/1182/>; <http://ca.water.usgs.gov/mercury/cacheCreek.html>

Methylmercury cycling, bioaccumulation, and export from agricultural and non-agricultural wetlands in the Yolo Bypass. 30 September 2010. San Jose State University Foundation.

http://swrcb2.swrcb.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/other_technical_reports/ybwa_hg_final_rpt.pdf

Mercury Inventory in the Cache Creek Canyon – Bear Creek Confluence to Rumsey. Central Valley Regional Water Quality Control Board (March 2011)

http://www.swrcb.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/cache_sulphur_creek/cache_crk_rumsey_inventory.pdf

Basin while the remainder is transported eastward (downstream) into the Yolo Bypass. Under anaerobic conditions common in lake sediments and wetlands, relatively inert inorganic mercury is transformed to toxic methylmercury by anaerobic bacteria. Methylmercury causes developmental damage to humans, fish, and wildlife¹⁴, and relatively high levels of mercury have been detected in the tissue of small fish collected from the Bypass. It is unclear whether, or to what extent, the presence of mercury within the Bypass and the ongoing loadings from the Cache Creek watershed present an obstacle to the restoration of floodplains, riparian forests, and wetlands.

5. **EPA will ask the Regional Water Board (San Francisco Bay) to exempt EPA's proposed \$20 million remedial plan for the Sulphur Bank Mercury Mine from the Board's prohibition on new industrial discharges into Clear Lake¹⁵.** As proposed, the remedial plan calls for the pumping and treating of contaminated water from the settling pond near the shore of the lake, and the discharge of the treated water into the lake. The remedial plan would significantly reduce mercury discharges into the lake and greatly decrease the risk of a catastrophic release of untreated water into the lake if the settling pond is breached¹⁶.

¹⁴Mercury: <http://www.epa.gov/mercury/eco.htm>

¹⁵ *Amending the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Mercury in Clear Lake.*

http://water.epa.gov/scitech/swguidance/standards/wqslibrary/upload/2009_03_16_standards_wqslibrary_ca_CA5-AMD-0002_092603.pdf

¹⁶Sulphur Bank Mercury Mine

<http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/ViewByEPAID/CAD980893275?OpenDocument>